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OFFICE OF THE CLERK OF COMMITTEES

Location:
Room 224, Parliament Buildings
Victoria, British Columbia
V8V 1X4

Telephone: **(250) 356-2933**

Toll free at: **1-877-428-8337**

Fax: **(250) 356-8172**

Email: **ClerkComm@leg.bc.ca**

Internet Homepage:
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February 21, 2001

To the Honourable,
The Legislative Assembly of
the Province of British Columbia
Victoria, British Columbia

Honourable Members:

We have the honour to present the *Thirteenth Report* of the Select Standing Committee on Public Accounts for the Fourth Session of the Thirty-Sixth Parliament.

This *Thirteenth Report* covers the work of the Committee on the follow-up matters relating to:

- British Columbia Ferry Corporation: Fleet and Terminal Maintenance Management and Operational Safety
- Preparedness of the British Columbia Government in Dealing with the Year 2000 Problem
- Protecting Drinking-Water Sources

Respectfully submitted on behalf of the Committee.

Mr. Rick Thorpe, MLA
Chair

Mr. Dan Miller, MLA
Deputy Chair

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BRITISH COLUMBIA FERRY CORPORATION: FLEET AND TERMINAL MAINTENANCE MANAGEMENT AND OPERATIONAL SAFETY

INTRODUCTION

In February 1996 the Auditor General issued a report on two performance audits of the B.C. Ferry Corporation, one assessing the corporation's fleet and terminal maintenance management and the other assessing operational safety. The audits were carried out by Auditor General staff during the period from October 1994 to January 1995. The Auditor General also issued follow-up reports in June 1998 and May 1999 regarding the recommendations contained in the original report, as well as recommendations formulated by the Select Standing Committee on Public Accounts in its consideration of the audits.

Your committee has heard testimony from representatives of the Office of the Auditor General and the B.C. Ferry Corporation on the issues of fleet and terminal maintenance management and operational safety in November 1996, December 1998 and May 2000. As well, the committee has previously issued two reports regarding these issues, in May 1997 and July 1999.

Auditor General staff conducted their most recent follow-up review on fleet and terminal maintenance management and operational safety in November 2000 and issued a report on the review in December 2000. In the area of fleet and terminal maintenance management, the report indicates that:

- one of eight Auditor General recommendations has been fully implemented, while seven have been partially implemented, and
- two of three recommendations issued by the Public Accounts Committee have been fully implemented, while the other has been partially implemented.

Regarding operational safety, the report indicates that:

- nine of ten Auditor General recommendations have been fully implemented, while one has been substantially implemented; and
- all three recommendations issued by the Public Accounts Committee have been fully implemented.

The Office of the Auditor General plans to carry out further follow-up with respect to fleet and terminal maintenance management, and the committee looks forward to receiving and reviewing the results of that follow-up. Further follow-up regarding the operational safety audit is not required.

FLEET AND TERMINAL MAINTENANCE MANAGEMENT

The purpose of the Auditor General's audit of fleet and terminal maintenance management was to assess the adequacy of the corporation's maintenance program and the extent to which the corporation measured achievement of the program's intended results, including obtaining value for money. The audit concluded that the corporation's vessels, related equipment, and terminal assets- specifically, marine structures- were maintained so that they were operationally safe and reliable. However, the auditors could not determine whether the corporation's maintenance activities were cost-effective because the corporation did not have the information necessary to permit such an assessment.

Implementation Status of Recommendations

The Auditor General's December 2000 follow-up report indicates that the following recommendations have been fully implemented:

Auditor General recommendations:

- *The corporation should develop an appropriate budgeting process that clearly allocates financial accountability.*

Your (Public Accounts) Committee recommends that:

- *The British Columbia Ferry Corporation develop a time line for implementation of the Auditor General's 1996 recommendations regarding fleet and terminal maintenance management.*
- *The British Columbia Ferry Corporation develop a time line for the assignment of full responsibility for vessel maintenance budgeting to senior chief engineers of each vessel.*

Additionally, the December 2000 report indicates that the following recommendations have been partially implemented:

Auditor General recommendations:

- *The corporation should address without further delay, the loss of productivity associated with having staff, who perform maintenance at Horseshoe Bay and Twawwassen terminals, assembling at Deas Dock.*
- *The corporation should establish clear, measurable, results-based objectives for its maintenance program, including performance standards relating to those objectives.*
- *The corporation should have consistent maintenance procedures for similar asset groups.*
- *The corporation should continue development of an adequate Maintenance Management Information System.*
- *The corporation should develop an appropriate inventory management process, and implement it throughout the organization.*
- *The corporation should periodically evaluate its maintenance program to determine if it is achieving its intended results and if the corporation is obtaining value for money from its maintenance.*
- *Senior management should regularly report to the board of directors on the extent to which it is achieving the intended results of its maintenance program.*

Your (Public Accounts) Committee recommends that:

- *The British Columbia Ferry Corporation ensure that the Maintenance Management Project is implemented throughout the organization as soon as possible, and that it addresses the recommendations made by the Auditor General in 1996 with respect to fleet and terminal maintenance management.*

Corporate Maintenance Management System

The committee heard in May 2000 that the implementation of several of the recommendations is contingent upon the successful implementation of a Corporate Maintenance Management System (CMMS). However, while CMMS was formerly anticipated to be fully implemented and operational at all major locations by December 1999, implementation of the system has been delayed. The committee learned that the delay was in part related to difficulties with ship-to-shore communications and with the on-line/real-time nature of the software (called IMMPOWER) underlying the system. In May 2000, the corporation was contemplating changing software packages due to perceived lack of support from the new vendor of the software.

The Auditor General's December 2000 follow-up report indicates that short-term resources have been allocated to address the technical problems with the communications link and that the corporation is

replacing the IMMPOWER software package with a new tier one software package called MAXIMO. The corporation is planning a conversion date of April 1, 2001, with final rollout completed by March 31, 2002.

Useful Life of the Fleet

During its deliberations in May 2000, the committee engaged representatives of the corporation in a discussion regarding the evolution of capital planning from the early- and mid-nineties to the present. In particular, some committee members expressed the view that the corporation had abruptly decreased its estimation of the need to build or acquire additional vessels for the fleet. Representatives of the corporation advised at that time that over the past year the corporation had carried out an assessment of existing assets including greater detail than surveys done in the mid-nineties. The committee learned that the corporation has developed a five-year capital plan, taking into account declining traffic and other factors. In discussion with the committee, corporation representatives agreed that longer range capital planning is necessary and indicated that the capital plan would be extended to a 15-year period later in the fiscal year.

Financial Accountability for Maintenance

The committee was advised by representatives of the corporation that the corporation has redesigned its corporate financial and budgetary framework to improve financial accountability for maintenance, effective April 1, 2000. Two key aspects of the new framework are the implementation of a "zero-based" approach to budgeting, and ensuring there are key budget managers (such as terminal maintenance managers or senior chief engineers) with responsibility for budgets developed under this approach. In response to concern expressed by the committee regarding the apparent unpredictability of terminal maintenance costs in the past, corporation representatives advised that the terminal maintenance program involves non-destructive testing procedures that are designed to catch problems before they become major problems.

Reporting to the Board

The committee was advised by corporation representatives that senior management reports quarterly to the board of directors regarding financial results of operations and that, as of April 1, 2000, the financial results of all refit projects in excess of $250,000 are reported to the board on an individual basis.

Operational Safety

The Auditor General's audit of operational safety assessed whether the corporation was meeting the requirements for operating a safe coastal ferry transportation system. While the Auditor General concluded that the corporation met most of the requirements for operating a safe coastal ferry transportation system, the audit identified a number of important areas where safety and administrative procedures should be improved.

Implementation Status of Recommendations

The Auditor General's December 2000 follow-up report indicates that the following recommendations have been fully implemented:

Auditor General recommendations:

- *The corporation should ensure that safety policies and procedures are current, complete and properly documented.*
- *The corporation should introduce a comprehensive risk management program directed at improving the level of operational safety; and undertake a comprehensive review of marine incidents on vessels and at terminals to determine root causes, including the impact of human error.*

- *The corporation should consider ways to provide more refresher training, and conduct research for improving crowd control strategies.*
- *The corporation should carry out an assessment of all vessel classes to determine whether crews are sufficient and capable of dealing with emergencies involving the number of passengers carried.*
- *The corporation should:*
  - *Ensure system wide uniformity and consistency of crew skills and proficiency in the execution of fire and boat drills, and crew's ability to handle the number of passengers carried in an emergency;*
  - *Determine the extent to which the problems associated with officer leadership, skills and proficiency of ships crews, and communications noted during our observations at a limited number of randomly selected fire and boat drills, exist elsewhere in the fleet, and develop an effective program to address identified concerns.*
- *The corporation should request a ruling from the Board of Steamship Inspection on its practice of operating northern vessels with some interior watertight doors in the open position.*
- *The corporation should complete the development of the comprehensive implementation strategy to manage and evaluate initiatives aimed at improving operational safety.*
- *The corporation should develop an evaluation framework and appropriate performance indicators to determine the extent to which corporate safety objectives are being achieved.*
- *The corporation should provide information to the board of directors on a regular basis about the extent to which operational safety objectives are being met.*

Your (Public Accounts) Committee recommends that:

- *The British Columbia Ferry Corporation ensure that the vessels which have not been certified according to the International Safety Management System be certified by April 1, 2000.*
- *The British Columbia Ferry Corporation develop a time frame for implementation of the Auditor General's 1996 recommendations regarding operational safety.*
- *Representatives of the British Columbia Ferry Corporation re-attend before the committee no later than October 31, 1999, in order to provide an update regarding progress made in implementing the committee's recommendations.*

Additionally, the December 2000 report indicates that the following recommendation has been substantially implemented:

Auditor General recommendation:

- *The corporation should assess the level of risk presented by non-commercial vehicles transporting dangerous goods and determine whether the random spot checks adequately address the risk.*

International Safety Management Program

The International Safety Management (ISM) program is a code for the safe operation of ships and for pollution prevention developed by the International Maritime Organization. The implementation of several of the recommendations on operational safety was contingent on the implementation of the ISM program, and the committee was pleased to learn in May 2000 that the program had been fully implemented as of the end of the 1999/2000 fiscal year. Representatives of the corporation advised that ISM establishes clear responsibilities for safety and procedures for carrying out those responsibilities. Additionally, ISM has a system of internal and external auditing to ensure compliance.

Risk Management Program

The committee was advised in May 2000 that implementation of the risk management program was substantially complete. The committee learned that level of reported marine incidents had increased, but corporation representatives suggested that the increase was due to improved tracking. They also indicated that incidents reported by the travelling public or staff related to safety are investigated. Letters from customers are responded to, informing the customer of any actions taken. Significant safety issues reported may prompt an inquiry and a formal report to the president and CEO, the executive and the board of directors. In May 2000, representatives of the corporation advised that the level of workers compensation claims had been "fairly constant" but that the corporation was targeting a 5 percent reduction in claims over the next year. The Auditor General's December 2000 follow-up report confirmed that the audit's recommendation in the area risk management has been fully addressed.

Training

In discussion with the committee in May 2000, representatives of the corporation advised that all staff working on the corporation's vessels have a basic level of training in shipboard safety. The degree of training increases with staff of higher ranking. The Auditor General's December 2000 follow-up report indicated that the audit's recommendations regarding training have been fully implemented.

PREPAREDNESS OF THE BRITISH COLUMBIA GOVERNMENT IN DEALING WITH THE YEAR 2000 PROBLEM

Introduction

The provincial government began its initiative to address the Year 2000 problem in 1996. To this end, a Year 2000 Implementation Task Force with representation from across government was established in 1996, and a central agency, the Action 2000 office within the Information, Science and Technology Agency (ISTA), was established in 1998.

The Office of the Auditor General began reporting on the progress made in identifying and correcting Y2K problems associated with government information systems in 1997. In October 1999, the office issued a report assessing the progress made by the government of British Columbia in dealing with the Year 2000 issue since the office's previous review in early 1999, and reporting on the state of government's preparedness to deal with the problem.

Your committee has been receiving periodic updates from government and the Office of the Auditor General since government began to work toward Y2K readiness. The committee reported on government information systems and the Year 2000 problem in June 1998 and again, following the transition into the Year 2000, in February 2000.

In May 2000, the committee heard testimony from the Deputy Minister of ISTA, Chief Information Officer for the province, regarding the *Final Y2K Report* of the Action 2000 office. In its deliberations, the committee considered the goals and activities of government in dealing with the Year 2000 problem, the results and legacy of these activities, public sector Y2K costs, and recommendations put forward in the Action 2000 final report.

In November 2000, Auditor General staff conducted a follow-up review of recommendations outstanding from the office's October 1999 report and the committee's February 2000 report. The review indicates that all seven Auditor General recommendations and both Public Accounts Committee recommendations in these reports have been fully implemented. No further follow-up for these recommendations is required.

Y2K Strategy and Readiness

The Action 2000 office was established in 1998 with three goals: minimize the impact of Y2K on the citizens of British Columbia; inform the public; and minimize the cost to taxpayers. In discussion with the committee in May 2000, the Deputy Minister of ISTA reviewed the strategic priorities underlying the initiatives undertaken to accomplish these goals. These priorities included:

- Bringing certainty to B.C. provincial public sector readiness through actions such as risk assessment and remediation; independent validation; standardized documentation and guidelines; and independent reviews of mission-critical systems
- Establishing standards and deadlines, and providing centralized guidance, coordination and monitoring mechanisms
- Minimizing legal liability through central standards setting and information, and engaging direct involvement of the Attorney General legal services branch with their ministry clients
- Focusing on Y2K as a business issue in government rather than as an information technology issue

- Providing focus to supply and service chain issues including service delivery partners in the non-profit sector and agencies, boards and commissions
- Implementing an aggressive communications strategy and ensuring a policy of open and informative communications
- Increasing emphasis on contingency planning by demanding comprehensive all-hazards business continuation plans across government and providing leadership in the exercise and testing of these plans
- Providing leadership throughout the management of the transition to Y2K and creating the first cross-government emergency management plan
- Focusing on the big picture by tracking Y2K progress and issues nationally and internationally, establishing partnerships with other essential service providers and jurisdictions, and monitoring vulnerable sectors of the population and economy
- Establishing a legacy for the Y2K effort and cost.

The committee was advised that 700 provincial staff were on duty or on call throughout the province for the transition to the Year 2000. During the transition period (formally December 30 to January 4, but concluded early), a comprehensive reporting structure was in place in B.C. for monitoring Y2K issues nationally and internationally and distributing information.

In May 2000, the Deputy Minister reported to the committee that the agency met the goals it set for itself, including minimizing the impact of Y2K on British Columbians and protecting essential services that British Columbians rely on.

Cost Issues

The committee has previously noted the difficulty of preparing a definitive estimate of the cost of year 2000 preparedness, which in part stems from the fact that major government work on Y2K was achieved within existing ministry budget allocations. To achieve consistency, Action 2000 consulted the Office of the Comptroller General on the definition of costs. The Office of the Auditor General November 2000 follow-up review confirmed that a consistent definition of costs was established, the cost definition reflected all the comments of the Comptroller General, and the cost definition and instructions were distributed to ministries and Crown corporations. As well, staff of the office reviewed the final costs for completeness and concluded that it is unlikely that any of the entities excluded from cost estimates would have incurred material Year 2000 costs.

In its final report, Action 2000 estimates B.C. public sector expenditures for Y2K, over the four-year period from 1996 to the Year 2000, to be $267 million. This figure includes $105 million for government ministries, $62 million for major Crown corporations, and $100 million allocated to health authorities for capital spending. Year 2000 preparedness costs were addressed by reallocation of resources within existing ministry budgets. The Deputy Minister of ISTA noted that the $100 million supplied to health authorities was "the only real incremental cost budgeted for Y2K." An additional estimated $32 million was absorbed by health authorities within their existing budgets.

In Action 2000's final report, the Y2K costs of ministries and Crown corporations are broken down into direct incremental costs, direct allocated costs, indirect costs and transition costs. However, this breakdown of information was not requested from health authorities and therefore is not available.

The Deputy Minister advised that ISTA has developed recommendations for processes of government in the areas of emergency preparedness and emergency management, business continuation planning, emergency communications and information technology security. These recommendations are included in the Action 2000 final report. Committee members expressed concern regarding the potential cost for implementation of these recommendations. The committee was advised that ISTA expects such costs to be absorbed within

existing budgets, with the exception of investments in information technology security around anti-virus protection for government desktop computers and servers.

Legacy

The committee heard from the Deputy Minister of ISTA that actions undertaken to address the Year 2000 problem have established a legacy in terms of operation and infrastructure in the province. This legacy includes:

- Establishment of comprehensive all-hazard business continuation plans across government
- An all-inclusive governmentwide emergency management plan
- New hospital equipment and related systems
- Information technology infrastructure within government
- Improved ownership of information technology issues by business leaders in government
- Establishment of a model based on government cooperation that will be useful in delivering any similar work.

The committee expressed interest in how the information technology system of government had been enhanced and whether integration between ministries had improved through Y2K preparedness efforts. The Deputy Minister advised that some ministries, as well as hospitals, improved their stock of information technology equipment considerably, largely because in some cases replacing equipment was less expensive than fixing it. The committee was also advised that Y2K efforts set the foundation for the government's InfoSmart information technology strategy, launched in April 2000. In the InfoSmart strategy, government is working toward greater integration of government information systems. For example, government plans to move to a single e-mail system within government within a three-year period.

In the committee's previous report on Year 2000 preparedness, your committee recommended that:

The government continue to promote the completion, testing and ongoing improvement of all-hazards business continuation plans in ministries, Crown corporations, and government organizations, including health authorities, advanced education institutions, school districts and municipalities, to insure against future disruptions to service delivery and operations.

In its November 2000 follow-up review, the Office of the Auditor General was able to conclude that there was evidence of government's efforts to this end. However, in the review, Auditor General staff noted that semi-annual status reports sent electronically to the risk management branch by ministry business continuation plan coordinators were not signed off by senior management. In order to ensure continued management awareness and involvement, Auditor General staff believe it desirable for the updates to be approved by management. They suggest this approval could be given annually or semi-annually and be evidenced by appropriate electronic signatures.

Conclusion

In addition to ensuring a smooth transition in the Year 2000, it is clear that actions undertaken to work toward Y2K readiness have left a legacy the province will benefit from in years to come. This legacy encompasses the areas of emergency preparedness, information technology infrastructure, a model for cross-government cooperation, and increased awareness of information technology issues within government.

As part of its follow-up review in November 2000, the Office of the Auditor General reviewed the process used to define the costs related to public sector Y2K preparedness and obtain the cost information from ministries, major Crowns corporations and health authorities. Committee members were pleased to learn that

a consistent definition of cost was established and that it is unlikely that any of the entities excluded from cost estimates would have incurred material Year 2000 costs.

The Information, Science and Technology Agency has developed recommendations for processes of government in the areas of emergency preparedness and emergency management, business continuation planning, emergency communications and information technology security. These recommendations are included in the Action 2000 *Final Y2K Report*. Your committee was advised by the Deputy Minister of ISTA that the Deputy Ministers' Committee on Emergency Preparedness is responsible for following up on these recommendations.

PROTECTING DRINKING-WATER SOURCES

INTRODUCTION

In March 1999, the Auditor General released his report entitled *Protecting Drinking-Water Sources*. The audit sought to determine whether the level of protection provided to drinking-water sources from human-related activities appropriately balances the cost and benefits of drinking water and other resources. The Auditor General found that the government was not adequately protecting drinking-water sources from human-related impacts, and made 26 recommendations to the government.

Throughout the summer and fall of 1999 and the spring of 2000, the committee reviewed the Auditor General's report. The committee tabled its own report on the topic in April of 2000, endorsing the Auditor General's recommendations, and making two additional recommendations, that:

- Progress on the 26 recommendations made in the Auditor General's report be reviewed and reported on every six months to the committee;
- Given the serious concern in the United States regarding groundwater contamination by the gasoline additive methyl tertiary butyl ether ("MTBE"), the ministries of Environment, Lands and Parks and Health examine the need for MTBE testing in British Columbia, and report back to the committee within twelve months with their findings.

Recommendations made by the Auditor General may be found at Appendix I of this report.

In October of 2000, the Auditor General conducted a follow-up review to determine the extent to which the recommendations had been implemented. The committee met to review the Auditor General's findings, and to hear from witnesses representing the inter-agency Directors Committee on Drinking Water which has been formed to coordinate implementation of the recommendations and related initiatives. Committee members also received testimony from British Columbia's Deputy Provincial Health Officer and a representative of the North Okanagan Water Authority.

The committee learned that of the twenty-six recommendations made by the Auditor General, three have been fully implemented, twenty-two have been partially implemented, and one recommendation is being addressed by alternative action. The committee's two recommendations have been partially implemented.

INTEGRATED MANAGEMENT OF BRITISH COLUMBIA'S DRINKING-WATER SOURCES

A "multi-barrier approach", involving a variety of provincial agencies, has been taken to the protection of British Columbia's drinking-water sources. Key recommendations contained in the Auditor General's original report called on the government to improve integration of management processes relating to drinking-water issues, in particular by:

- Designating a lead agency in government to protect drinking-water interests and coordinate government policy and action
- Ensuring meaningful representation for drinking-water consumers and suppliers in such processes, ensuring that decisions are grounded in sufficient reliable information regarding natural conditions in watersheds and the values and impacts of competing resource uses, and ensuring that findings and recommendations are handed off to those with authority to act on them
- Reporting annually on the protection of drinking-water quality
- Issuing comprehensive drinking-water guidelines
- Evaluating the rights of resource access of drinking-water suppliers pursuant to the *Water Act*, to determine their appropriateness.

Lead Agency

In the course of the committee's review of the Auditor General's original audit report, designation of a lead drinking-water agency was viewed by many witnesses as critical to protecting British Columbia's drinking-water sources and ensuring that drinking-water consumers and suppliers have appropriate representation. However, in November 2000 the committee learned that the government has chosen not to designate a lead agency. Rather, representatives of the Directors Committee on Drinking Water advised that a single agency addressing all aspects of drinking water, including source water protection, regulation of water systems, and public health protection, is not considered practical. As a result, the government has chosen an alternative action to address the Auditor General's recommendation - responsibility for drinking water is to be shared between the Ministry of Health and regional health authorities, who are responsible for ensuring the safety of drinking water from intake to tap, and the Ministry of Environment, Lands and Parks, which has a mandate to protect drinking-water sources.

Accountability for the Protection of British Columbia's Drinking Water Quality

Dr. Shaun Peck, British Columbia's Deputy Provincial Health Officer, provided the committee with information relating to the management of drinking-water source protection, water treatment and waterborne disease in the province.

During the course of Dr. Peck's presentation, the committee discussed the Walkerton, Ontario *e. coli* outbreak, and questioned whether there are safeguards in place in British Columbia to reduce the risk of a similar event occurring here. Dr. Peck emphasized the importance of British Columbia's multi-barrier approach toward drinking-water source protection and water treatment, and indicated his support for a collaborative approach to the protection of drinking-water sources in the province, as opposed to responsibility resting with one lead agency. Communication problems between water purveyors and public health officials are thought to have been a key factor in the Walkerton tragedy, and the committee discussed processes followed to mitigate against the risk of such communication breakdowns occurring in British Columbia. However, Dr. Peck stressed that from a public health perspective, there are limitations to improving the potability of source water. For example, natural events beyond the control of governments can impact on water quality. As well, the committee learned that as of November 2000 there were 220 boil-water advisories in British Columbia, most on small water systems. Dr. Peck discussed some of the challenges of enforcing British Columbia's *Safe Drinking Water Regulation* disinfection requirements, and submitted that more action must be taken to increase awareness of the importance of adequate water treatment, and promote examination of newer treatment technologies.

In accordance with the Auditor General's recommendation, the Provincial Health Officer has been asked to assess the quality of British Columbia's drinking water and report annually to the Minister of Health. Dr. Peck is currently in the process of drafting such a report, and provided the committee with an overview. He advised that the report will concentrate on the drinking-water treatment and distribution system, provide an overview of water quality and related health statistics and trends, and make recommendations toward continued improvement of British Columbia's drinking water. Draft recommendations that are likely to be included in the report will focus on:

- The priority placed on the safety of drinking water in all legislation affecting drinking-water sources
- Purveyors' awareness of activities in and affecting water sources
- Responsibility of purveyors for informing the public
- Development of water quality improvement plans by public health officials in each health region
- Quality assurance/good management practices
- Education/public information issues
- Funding issues
- Monitoring

- Future Provincial Health Officer reports.

The Provincial Health Officer's draft report is expected to be ready for circulation and comment in late February of 2001, and members look forward to receiving and reviewing the draft at that time.

Other Recommendations

Committee members learned that initiatives to address the Auditor General's other recommendations relating to improved integration of management processes are underway and, as of November 2000, included:

- Assessment of opportunities for consumer and supplier representation in land and resource management plans
- Coordination of forestry land use practices with public health protection interests
- Completion of a draft report reviewing water legislation with respect to water quality rights of consumers and rights of drinking-water suppliers
- Work on guidelines for community-based watershed management
- Development of a methodology for mapping water supply areas
- Projects to improve integration and access to water data
- Initiation of follow-up with local governments through land and resource management plan implementation and monitoring groups, and reviewing local governments' actions following the hand-off of completed plans
- Continued participation in the Federal-Provincial Subcommittee on Drinking Water, which has developed drinking-water guidelines and supporting documentation for more chemical and microbiological parameters
- Development of new legislation to provide authority to communities to protect drinking-water sources, including provisions for setting enforceable water quality standards and groundwater regulations, and designating water protection zones; consultations with the Union of British Columbia Municipalities are expected to be complete by December 31, 2001.

Management o Human-Related Activities

The original audit report contained recommendations to enhance protection of B.C.'s drinking-water sources from the impacts of certain human-related activities, and recommendations were made regarding the following activities:

- Forest development
- Livestock grazing
- Agriculture
- Transportation
- Outdoor recreation
- Human settlement.

During the course of the committee's deliberations, there was some discussion of the possibility that natural disturbances (for example, from wildlife) may be equally, or even more, significant to drinking-water quality than human-related activities and resource use conflicts. Representatives of the Directors Committee on Drinking Water agreed that natural disturbances are a significant threat to British Columbia's drinking-water sources, and noted that the vast majority of waterborne disease outbreaks occurring in British Columbia since 1980 have not been related to human activity.

Forest Development

Recommendations made by the Auditor General relating to forestry activities focused on the following processes as set out in the 1995 *Forest Practices Code*:

- Examinations by licensed professionals
- Sufficiency of specialists on staff to support approval processes for forestry operational plans
- Development and monitoring of water quality objectives for community watersheds
- Inspection of operations being carried out in community watersheds
- The range of results-based monitoring in community watersheds.

Representatives of the Directors Committee on Drinking Water submitted that, as of November 2000, recommendations regarding licensed professionals and specialists had been fully implemented, and the remainder were in progress through the following initiatives:

- Review of the Ministry of Forests' compliance and enforcement program
- Development of water quality objectives for more community watersheds
- Formation of a committee to explore the need for and feasibility of a broader range of results-based monitoring.

Livestock Grazing

In his March 1999 report, the Auditor General identified the need to expand range provisions in the *Forest Practices Code* to more effectively address risks from parasites, and to separate responsibilities for developing and enforcing range use plans under the *Code*.

The committee was pleased to learn in November 2000 that responsibilities for development and enforcement of range use plans had been separated, through a regulatory amendment passed in September 2000. However, work on expanding range provisions in the *Code* was still in progress, and a working group had been established to explore the issue and report to the Directors Committee on Drinking Water by spring 2001.

Outdoor Recreation

The Auditor General had recommended that the government gather more information on the impacts of recreation on drinking-water sources, as a basis for future policy development. In November 2000, the committee heard that this work was in progress. A study relating to watersheds on Vancouver Island had been completed, and similar studies were in progress in the Kelowna area.

Transportation

When the committee met to discuss the original audit report, it heard that the government needed to place priority on planning and building transportation routes and infrastructure in ways to prevent drinking-water source degradation, strengthening procedures to minimize damage to drinking-water sources from spills and leaks, and preventing wide-area ("non-point source") contamination.

As of November 2000, these recommendations had been only partially implemented, with activities underway including:

- Review and update of the Highway Environmental Assessment Process Manual by a working group
- Support of projects to encourage the prevention and management of non-point source pollution, through the provincial Non-Point Source Water Pollution Action Plan
- Establishment of a local government non-point source pollution committee
- Preparation of a non-point source pollution best management practices technical compendium
- Update of the Memorandum of Understanding between the ministries of Transportation and Highways, and Environment, Lands and Parks to address spill management, liaison and technology transfer issues.

Agriculture

In his original audit, the Auditor General noted that "nutrient-loading" is the most significant threat to drinking-water quality in British Columbia, particularly in the lower Fraser Valley. He had determined that the government needed to develop region-specific regulations for agricultural sources of nutrients, strengthen compliance with the *Code of Agricultural Practice for Waste Management* through more outreach efforts, and give priority to monitoring and enforcing compliance with the *Code*.

In November 2000, the committee learned that some progress had been made in this area since members last considered the issue in the spring of 2000. Representatives of the Directors Committee on Drinking Water advised that the first draft of a nutrient management plan for the lower Fraser Valley had been completed. Stakeholder consultations were underway with respect to other recommendations made by the Auditor General.

Human Settlement

In his March 1999 report, the Auditor General had called on the government to address issues relating to the cumulative impact of septic tank systems, the need for nutrient-control provisions for septic tank systems, and assistance for local governments in the development of septic tank maintenance bylaws.

As of November 2000, initiatives underway to address the Auditor General's recommendations were as follows:

- Establishment of a working group to examine the issue of giving approval officers authority to take into account the cumulative impacts of septic tank systems when examining subdivision proposals, with a draft report to be circulated to stakeholders, including the Union of British Columbia Municipalities
- Projects to identify, map and designate areas in British Columbia where septic fields have caused, or may cause, adverse effects on drinking-water sources, and to identify ways to encourage the use of innovative septic system technology
- Completion of a draft report regarding on-site sewage management
- Development of a model septic tank maintenance by-law, with accompanying guidelines and toolkit.

The committee also discussed the impact of disposable diapers on drinking-water sources in the province. Committee members learned that the Ministry of Environment, Lands and Parks has adopted an industry stewardship approach to some products such as pesticides and beverage containers, whereby the costs of removing product residuals from landfill systems are diverted away from taxpayers and toward manufacturers and product consumers. However, currently there is no similar initiative for disposable diapers. Rather, in 1990 the province removed disposable diapers from the Social Services Tax exemption for children's clothing, to discourage their use. Ministry representatives emphasized to the committee that studies regarding the comparative environmental impact and health hazards of disposable and reusable diapers are inconclusive.

Methyl Tertiary Butyl Ether ("MTBE")

When the committee originally met on the topic of drinking-water source protection in the fall of 1999 and spring of 2000, members discussed the impact of underground storage tanks, and examined experiences and initiatives in other jurisdictions, particularly the state of California. The committee learned that there are no regulations governing the presence of MTBE in the province's drinking water. MTBE is an octane-enhancer added to gasoline to improve fuel combustion and reduce air pollution. The committee recommended that the government examine the need for MTBE testing in British Columbia.

Committee members were pleased to hear in November 2000 that action had been taken to respond to its recommendation. Specifically, monitoring of groundwater sources and selected surface water sources was underway, and water quality guidelines for MTBE were expected to be released in late April 2001. However, a concern was expressed from within the committee about the need for a more preventive approach, involving identification of potential sites of MTBE (such as abandoned gas stations) *before* the substance filters through

to drinking-water sources. In this regard, representatives of the Ministry of Health submitted that work is being done with local governments to identify areas of increased risk, such as transportation routes.

On a related note, the committee engaged representatives of the Directors Committee on Drinking Water in a discussion of the need for more safeguards to protect against oil and gas spills. Committee members were concerned that steps be taken to prevent recurrence of an incident occurring in northeastern British Columbia's Pine River in August 2000. That incident involved the rupture of a crude oil pipeline, which forced nearby communities to rely on drinking-water reserves and to consider the need to seek alternative permanent drinking-water sources. Committee members were advised that the Pine River spill prompted the Ministry of Environment, Lands and Parks to review its response to freshwater oil spills, and improve contingency planning for pipeline crossings. However, the committee is of the view that more work is needed in this area, and that the Ministry of Energy and Mines, in conjunction with the oil and gas industry, should investigate the feasibility of conducting a comprehensive review of pipeline safety. Moreover, the committee intends to invite ministry representatives to appear before the committee for further discussions on this issue.

Groundwater Management

The Auditor General's March 1999 report had noted that a disturbing number of British Columbia's groundwater drinking-water sources are at risk of being contaminated, and made recommendations focusing on monitoring, mapping and inventory of aquifers.

The report had also noted that British Columbia is the only jurisdiction in Canada that does not have specific groundwater legislation.

In November 2000, the committee heard about initiatives that had progressed since the committee last met on this topic including:

- Direction from the Premier to the Ministry of Environment, Lands and Parks in the fall of 2000 to develop groundwater legislation for British Columbia; in a discussion of the need for more regulation of domestic well water consumption and well-drilling, the committee also learned that this review will include an examination of provincial standards for wells
- Groundwater protection workshops
- Continuation of aquifer mapping and inventory activities
- Expansion of the observation well network, with 10 additional sites to be established by April 2001
- Training to support the Well Protection Toolkit, a guide to assist communities in groundwater protection planning; committee members learned that the toolkit may be adapted for use by individuals, to address concerns about domestic consumption of well water
- Development of a groundwater protection program for Hornby Island, to be completed by April 2001.

Small Water Systems

Small water systems have been defined by the Auditor General as systems supplying a single property or household, or community water systems supplying two or more connections, or having a single connection providing drinking water to the public. The original audit had revealed that the owners/operators of small water systems seldom have the resources necessary to perform regular testing and preventive maintenance. As a result, small water systems in British Columbia have experienced a higher percentage of water-related health problems than larger systems. The Auditor General had recommended that the government consider the special circumstances of small system users in any examination of the rights and responsibilities of drinking-water system owners.

As of November 2000, a number of actions were in progress to address the Auditor General's recommendations, as follows:

- A waterworks operators manual had been developed and was being formatted for CD-ROM

- A waterworks system classification and operators' certification process had been developed; the committee also learned that the British Columbia Water and Waste Association has been contracted to deliver a small waterworks course regionally, on a pilot project basis, with financial assistance to be provided by the Ministry of Health to offset registration costs - this pilot project is expected to commence in March of 2001
- Policies and guidelines were being developed to assist health regions in enforcement of the *Safe Drinking Water Regulation.*

A Water Purveyor's Perspective

The committee's report on the protection of drinking-water sources, tabled in April of 2000, gave consideration to numerous submissions made by water purveyors from around the province and the organizations representing them. During examination of the Auditor General's follow-up review, the committee had the opportunity to give further consideration to a water purveyor's perspective on protection of drinking-water sources, receiving evidence from Mike Stamhuis of the North Okanagan Water Authority. Mr. Stamhuis was also speaking as a member of the Water Supply Association, an organization representing water purveyors located primarily in the interior of British Columbia. The committee recognizes that the views expressed by Mr. Stamhuis do not necessarily represent the concerns of all water purveyors in the province.

Mr. Stamhuis advised that the watershed in his area is, and has historically been, a multi-use watershed in which logging, grazing and recreational activities take place. He argued that efforts made to manage these activities have not been sufficient to prevent water quality problems which chlorination cannot fully address. Mr. Stamhuis cited the costliness of constructing a filtration plant in the area, and emphasized the importance of water source protection in the minimization of water quality problems.

Mr. Stamhuis also provided the committee with a water purveyor's view of British Columbia's land and resource management planning process ("LRMP"). He expressed concern about the role of local water authorities in the process, and the length of the process. The committee learned that there have not been any steps taken toward development of a comprehensive watershed management plan in the North Okanagan Water Authority area. In this regard, committee members discussed the utility of integrated watershed management planning ("IWMP's") as a tool which may be effective in addressing management of the competing resource uses in community watersheds. According to representatives of the Auditor General's office, IWMP's were initiated in the 1970's, and twenty such plans were completed. They advised of the effectiveness of the plans, but emphasized the importance of ensuring that plan recommendations are handed off to those with authority to act on them.

Finally, Mr. Stamhuis submitted that the Auditor General's original report on protection of drinking-water sources goes to the heart of the issues affecting drinking-water suppliers, and urged the government to provide the resources necessary for full implementation of the recommendations. He was particularly supportive of recommendations relating to integrated management processes, designation of a lead drinking-water agency, examination of the rights of water suppliers, on-site inspection of forest development activities, livestock grazing, recreational activities and aquifer mapping and inventory.

Conclusion

In summary, the committee learned that of the twenty-six recommendations made by the Auditor General relating to the protection of drinking water sources, three have been fully implemented, twenty-two have been partially implemented, and one recommendation (that government designate a lead agency) is being addressed by alternative action. The committee's two recommendations have been partially implemented.

Representatives of the Directors Committee on Drinking Water advised the committee in November 2000 that thirteen more initiatives were expected to be implemented to address the Auditor General's recommendations over the course of the following six months.

The committee has also been advised by a representative of the Directors Committee on Drinking Water that the province has embarked on a major legislative and planning initiative that supports and goes beyond the Auditor General's recommendations. In late January 2001, the B.C. government made public its *Drinking Water Protection Plan: A Discussion Document* and announced that it would hold information sessions and seek input from stakeholders and the public regarding the draft plan. The discussion paper identifies challenges that need to be addressed in providing safe drinking water, and sets out proposed actions in the areas of water assessment, community planning, local influence and authority, and general drinking water measures. Regional information sessions for groups and individuals interested in providing input into the safe drinking water plan were held in various regions across the province from January 26 to February 13, 2001.

Committee members were pleased to receive a progress report at the committee's meeting on February 20, 2001, from representatives of the Ministry of Environment, Lands and Parks and the Ministry of Health regarding government efforts to develop a provincial drinking water protection plan.

Your committee plans to conduct an ongoing follow-up review of the implementation status of all recommendations, and looks forward to receiving another progress update from the Directors Committee on Drinking Water in approximately six months.

COMMITTEE RECOMMENDATIONS:

Your committee recommends:

1. That the Ministry of Energy and Mines, in conjunction with the oil and gas industry, investigate the feasibility of conducting a comprehensive review of pipeline safety, and that representatives of the ministry be invited to appear before the committee for further discussions.

2. That where practicable, the Ministry of Health should be the lead agency for drinking water.

3. That the ministries responsible for workplans to implement the recommendations on drinking water made by the Auditor General and the Select Standing Committee on Public Accounts report to the Committee every six months.

APPENDICES

APPENDIX I – SUBMISSIONS AND CORRESPONDENCE

British Columbia Ferry Corporation: Fleet and Terminal Maintenance Management and Operational Safety:

- British Columbia Ferry Corporation. Presentation to the Select Standing Committee on Public Accounts. May 9, 2000.
- — . Letter to Kelly Dunsdon, Committee Researcher, Office of the Clerk of Committees. June 28, 2000.
- Office of the Auditor General of British Columbia. "Information provided to the Select Standing Committee on Public Accounts regarding the follow-up of recommendations in 1995/96 Report 2, British Columbia Ferry Corporation Fleet and Terminal Maintenance Management - Operational Safety." December 2000.

Preparedness of the British Columbia Government in Dealing with the Year 2000 Problem:

- Keyvan Ahmadi. Letter to Stuart Culbertson, Deputy Minister, Information, Science and Technology Agency, and Chief Information Officer, Re: Final Y2K Report Follow-up, August 30, 2000.
- Information, Science and Technology Agency. "Final Y2K Report." Action 2000 office, February 2000.
- Stuart Culbertson, Deputy Minister, Information, Science and Technology Agency, and Chief Information Officer. Presentation to the Select Standing Committee on Public Accounts. May 2, 2000.
- — . Memorandum to Office of the Clerk of Committees, Re: Y2K Final Report, dated May 16, 2000.
- — . Letter to Keyvan Ahmadi, Senior Principal, Office of the Auditor General of British Columbia, dated September 26, 2000.
- Office of the Auditor General of British Columbia. "Information provided to the Select Standing Committee on Public Accounts regarding the follow-up of recommendations in 1999/2000 Report 7, Report on the Preparedness of the Government of British Columbia in Dealing with the Year 2000 Problem, October 1999." January 2001.

Protecting Drinking-Water Sources:

Written Submissions

- Presentation of Dr. Shaun Peck, Deputy Provincial Health Officer, to the Select Standing Committee on Public Accounts, dated November 7th, 2000.
- "Information provided to the Select Standing Committee on Public Accounts regarding the follow-up of recommendations in *1998/99 Report 5: Protecting Drinking-Water Sources*", Office of the Auditor General, November 2000.
- "Provincial Government Actions to Protect Drinking-water Sources: Update prepared for the Select Standing Committee on Public Accounts", Directors Committee on Drinking Water, October 27th, 2000.
- "Submission to the Select Standing Committee on Public Accounts", Michael A. Stamhuis, North Okanagan Water Authority, November 7th, 2000.

Correspondence

- Copy of correspondence from Ted Osborn, Chair, North Okanagan Water Authority, to Premier Ujjal Dosanjh, dated December 18th, 2000.
- Correspondence from James S. Mattison, Director, Water Management Branch, Ministry of Environment, Lands and Parks, to Kelly Dunsdon, Committee Researcher, Office of the Clerk of Committees, dated December 4th, 2000.
- Copy of correspondence from the Honourable Joan M. Sawicki, Minister of Environment, Lands and Parks, to Ted Osborn, Chair, North Okanagan Water Authority, dated June 15th, 2000.
- Copy of correspondence from Ted Osborn, Chair, North Okanagan Water Authority, to the Honourable Joan M. Sawicki, Minister of Environment, Lands and Parks, dated September 28th, 2000.
- Copy of correspondence from Ted Osborn, Chair, North Okanagan Water Authority, to Premier Ujjal Dosanjh, dated March 23rd, 2000.

Appendix II – Research Documents

British Columbia Ferry Corporation: Fleet and Terminal Maintenance Management and Operational Safety:

- British Columbia Ferry Corporation. "Auditor General's Report on Fleet & Terminal Maintenance Management: Status Update." May 9, 2000.
- — . "Auditor General's Report on Operational Safety: Status Update." May 9, 2000.
- Office of the Auditor General of British Columbia. "Information provided to the Select Standing Committee on Public Accounts regarding the follow-up of recommendations in 1995/96 Report 2, Performance Audits: British Columbia Ferry Corporation Fleet and Terminal Maintenance Management - Operational Safety." May 9, 2000.
- — . 1999/2000 Report 1, "1999 Follow-up of Performance Audits/Reviews." May 1999.
- — . 1998/99 Report 1, "Follow-up of 1996 Performance Audits/Studies. June 1998.
- — . Presentation to the Select Standing Committee on Public Accounts. May 9, 2000.
- — . 1995/96 Report 2, "Performance Audits: British Columbia Ferry Corporation Fleet and Terminal Maintenance Management - Operational Safety." January 1996.
- Select Standing Committee on Public Accounts. "Follow-up of the 1996 Performance Audits/Studies." July, 1999.
- — . "Review of Auditor General Reports and Related Matters 1996/97." May 1997.

Preparedness of the British Columbia Government in Dealing with the Year 2000 Problem:

- Office of the Auditor General of British Columbia. 1996/97 Report 6, "Report on the 1995/96 Public Accounts." April 1997.
- — . 1997/98 Report 2, "Report on the 1996/97 Public Accounts." February 1998.
- — .1999/2000 Report 2, "Report on Government Financial Accountability for the 1997/98 Fiscal Year." June 1999.
- — . 1999/2000 Report 7, "Report on the Preparedness of the Government of British Columbia in Dealing with the Year 2000 Problem." October 1999.

- Select Standing Committee on Public Accounts. First Report for the Third Session of the Thirty-sixth Parliament. "Corporate Accounting System (CAS); The Year 2000; Retention and Disposal Applications; Public Accounts Electronic Format (Internet)." June 1998.
- — . Ninth Report for the Third Session of the Thirty-sixth Parliament. "Report on the Preparedness of the British Columbia Government in Dealing with the Year 2000 Problem." February 2000.

Protecting Drinking-Water Sources:

- Bohn, Glenn. "B.C. water plan shows trace of déjà vu." *Vancouver Sun.* January 26, 2001: A1.
- Canadian Press. "NDP promises safe-water law." *Times-Colonist (Victoria).* January 26, 2001: A8.
- Government of British Columbia. "Drinking Water Protection Plan: A Discussion Document: January 2001." Viewed at http://www.env.gov.bc.ca/wat/wq/dw/.
- Ministry of Environment, Lands and Parks and Office of the Premier. "Province Releases Drinking Water Protection Plan." Press release, January 25, 2001.
- Pynn, Larry. "'Rich' B.C. gets a D grade on water standards." *Vancouver Sun.* January 18, 2001: A3.

Appendix III – Recommendations Made By The Auditor General In *Protecting Drinking-Water Sources (1998/99 Report 5)*

1. Ensure that in integrated management processes dealing with drinking-water issues:
   - Drinking-water consumers and suppliers are meaningfully represented;
   - Decisions are grounded in sufficient reliable information about natural conditions in the watershed and the values and impacts of competing resource uses; and
   - Findings and recommendations are handed off to elected or appointed officials with the authority to act on them.
2. Designate within government a lead agency for drinking-water interests, to coordinate government policy and action on drinking-water issues.
3. Report annually, at both provincial and local levels, on its protection of drinking-water quality.
4. Issue a comprehensive set of guidelines for good drinking-water, so that decision-makers and citizens can better understand the information they receive about drinking-water quality.
5. Carry out a comprehensive evaluation of the rights of resource access of drinking-water suppliers, to determine if they are appropriate.
6. Implement, as soon as possible, the requirements of the *Forest Practices Code* to have certain key examinations and judgments done by licensed professionals.
7. Determine whether it has sufficient specialists on staff to support its approval processes for forestry operational plans appropriately.
8. Examine and regularly report on both priorities for on-site inspections of operations in community watersheds and the frequency of inspections actually carried out.
9. Develop water quality objectives for all community watersheds as a matter of priority, if such objectives are to remain the main legislated mechanism for results monitoring under the *Forest Practices Code*.
10. Clearly assign responsibility for monitoring whether water quality objectives are being met, at all stages of forest development within community watersheds.

11. Give consideration to widening the range of results-based monitoring in community watersheds required under the *Forest Practices Code.*
12. Expand the range provisions of the *Forest Practices Code* to more effectively address risks from parasites.
13. Consistently separate the responsibilities for developing range use plans and for enforcing them, or introduce compensating controls.
14. Gather information on the impacts of recreation on drinking-water sources, as a basis for future policy development.
15. Give priority to planning and building transportation routes and infrastructure in ways that will prevent the degradation of drinking-water sources.
16. Continue to strengthen procedures to minimize damage to drinking-water sources from chemical spills and leaks, and to implement provisions to prevent wide-area (non-point source) contamination.
17. Develop region-specific regulations for agricultural sources of nutrients.
18. Strengthen compliance with the Code of Agricultural Practice for Waste Management through more outreach efforts to encourage voluntary compliance by farmers.
19. Give priority to monitoring compliance with the Code of Agricultural Practice for Waste Management, and to enforcement actions that encourage compliance with the Code, in order to maintain the incentive for voluntary compliance.
20. Consider giving approving officers the authority to take into account the cumulative impacts of septic tank systems when examining subdivision proposals.
21. Determine whether there are areas of British Columbia in addition to the Okanagan Valley where nutrient-control provisions for septic tank systems could help reduce the need for investment in new drinking-water sources, or in higher levels of water treatment.
22. Complete and implement the proposal to help local governments develop maintenance bylaws for septic tank systems.
23. Ensure regular monitoring of groundwater usage and levels in all developed aquifers across the province.
24. Ensure that monitoring of groundwater quality occurs regularly in all developed aquifers in the province, and more frequently in all vulnerable aquifers.
25. Establish a comprehensive and coordinated aquifer mapping and inventory program.
26. Ensure that any examination of the rights and responsibilities of drinking-water system owners considers the special circumstances of small system users.